

CLAIMS:

1. A dilatation balloon formed from a first material and further comprising at least one first plasma polymerized layer which forms the outer most layer of said balloon.  
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2. The balloon of claim 1 wherein said plasma polymerized layer is formed by the reaction of a monomer selected from the group consisting of hydrocarbons, amines, nitriles, fluorocarbons, silanes, siloxanes, silazenes, titanates, ethers, esters, acids, alcohols and mixtures thereof.  
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3. The balloon of claim 1 wherein said at least one plasma polymerized layer is formed using at least one organic monomer.
4. The balloon of claim 2 wherein said hydrocarbon is methane, polyethylene,  
15 polypropylene, butadiene, benzene, toluene, xylene and mixtures thereof.
5. The balloon of claim 1 wherein said at least one plasma polymerized layer is formed by at least one pyrrole monomer.
- 20 6. The balloon of claim 1 wherein said monomer is a fluorocarbon selected from the group consisting of fluoroalkyls, fluorohydroalkyls, cyclofluoroalkyls, fluorobenzene and mixtures thereof.
7. The balloon of claim 1 further comprising a second plasma polymerized layer  
25 which is between said balloon and said at least one first plasma polymerized layer.
8. The balloon of claim 7 wherein said second plasma polymerized layer is harder than said at least one first plasma polymerized layer.
- 30 9. An implantable medical device having proximal and distal ends adapted for manipulation outside of the body said device comprising:  
a polymeric elongate body extending between proximal and distal ends of said device; and

a polymeric expandable portion located at said distal end of said elongate body;  
wherein said expandable portion comprising at least one first plasma  
polymerized layer which forms the outer most layer of the balloon.

5     10.     The medical device of claim 9 wherein said expandable portion is a dilatation  
balloon.

11.     The medical device of claim 10 wherein said balloon is a multilayer balloon  
comprising at least one second plasma polymerized layer which forms an intermediate  
10     layer between said balloon and said first plasma polymerized layer, said first plasma  
polymerized layer is softer than said second plasma polymerized layer.

12.     The medical device of claim 11 wherein said intermediate layer is formed  
through the reaction of pyrrole monomer.

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13.     The medical device of claim 10 further comprising a stent disposed about said  
dilatation balloon.

14.     A method of coating the surface of a catheter balloon with an abrasion resistant  
20     coating said method comprising the steps of:

(a)     exposing said balloon to at least one first gaseous monomer composition;  
and  
(b)     exposing said gaseous monomer to electromagnetic waves to form a  
plasma said monomers condensing on said catheter balloon and crosslinking to  
25     form at least one first plasma polymerized layer, and  
wherein said at least one first plasma polymerized layer forms the outermost  
layer of said catheter balloon.

15.     The method of claim 14 wherein said monomer is selected from the group  
30     consisting of hydrocarbon monomers, silicon containing monomers, fluorocarbon  
monomers, ethylenically unsaturated monomers, titanates, and mixtures thereof.

16. The method of claim 15 wherein said monomer is a hydrocarbon monomer selected from the group consisting of benzene, toluene, xylene, methane, ethylene, propylene, butadiene and mixtures thereof.
- 5 17. The method of claim 15 wherein said monomer is a fluorocarbon selected from the group consisting of fluoroalkyls, fluorohydroalkyls, cyclofluoroalkyls, fluorobenzene and mixtures thereof.
18. The method of claim 14 wherein said monomer is pyrrole.
- 10 19. The method of claim 14 wherein said monomer is an organic monomer.
20. The method of claim 14 further comprising the steps of:
- 15 c) exposing said balloon to at least one second gaseous monomer composition; and
- d) exposing said at least one second gaseous monomer composition to electromagnetic waves to form a plasma said monomers condensing on said catheter balloon and crosslinking to form at least one first plasma polymerized layer, and
- 20 wherein steps c) and d) occur before steps a) and b) and wherein said at least one first plasma polymerized layer forms the outermost layer of said catheter balloon.
21. The method of claim 20 wherein said second plasma polymerized layer is harder than said first plasma polymerized layer.